

**A NEW SPECIES OF PARALEPTOPHLEBIA FROM THE SOUTHEAST**  
(EPHEMEROPTERA, LEPTOPHLEBIIDAE)<sup>1</sup>By LEWIS BERNER, *Department of Biology, University of Florida, Gainesville.*

While studying the mayflies of Piney River, Amherst County, Virginia, in 1953, Miss Jean Pugh collected three males and one female, as well as several subimagos, of a very distinctive species of *Paraleptophlebia*. In the spring of 1954 during a collecting trip in west-central Alabama, I found adult males of the same species. A careful study of described species in this genus clearly shows that these mayflies represent a new species, the description of which is given below.

It is interesting to note that the Virginia specimens are from the Blue Ridge Province of the Appalachian Highlands while the Alabama mayflies were from a stream located well within the Coastal Plain. The stream from which the second collection came was a tributary of the Tombigbee River which extends northward into the Appalachian Plateaus. The pathway for the movement of insects between these physiographic provinces appears to be clearly established through the southwardly draining stream systems of the Appalachian Highlands. It is also surprising that this distinctive species should not have been previously taken, yet within a space of less than a year be collected on two occasions from such widely separated localities.

***Paraleptophlebia jeanae* new species**

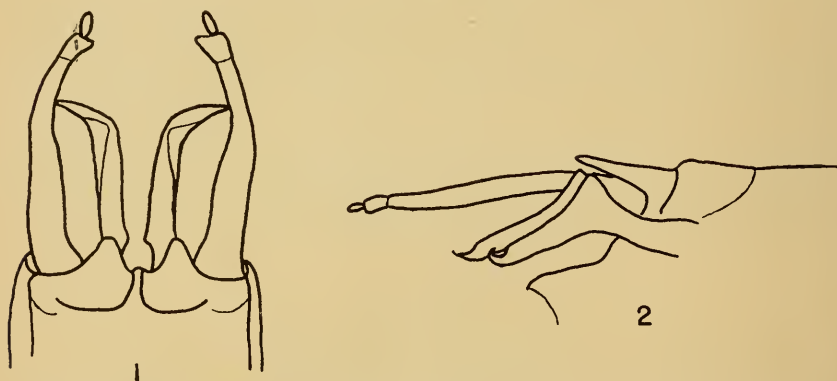
(Figures 1, 2)

*Paraleptophlebia jeanae* can be differentiated from all other species of the genus by the very distinctive shape of the male genitalia.

*Male (holotype).*—Body length, 6.8 mm.; mesothoracic wings, 6.4 mm.; caudal filaments, 7.8 mm. *Head.* Eyes large, contiguous dorsally; upper half orange brown, lower half black. Vertex brown. Lateral ocelli large, usual brownish color at base; median ocellus much smaller than laterals. Blackish-brown marks extend laterally from the lateral ocelli; just in front of each eye they form a heavy dark mark below the eye and above the antennal base. The triangle thus formed extends medioventrally toward the frontal carina. Frontal carina brown; frontal shelf translucent, pale. At the juncture of the shelf with the face, there is a blackish-brown line extending the full length of the shelf. Basal segments of antennae brown; flagellum pale. *Thorax.* Shining blackish brown; no distinctive marks present. Wings: Milky; longitudinal veins colorless, crossveins indistinct. Brownish color at the extreme base of the forewing, the color extending into the basal portion of the costa and slightly beyond the humeral brace, and in the radius as far as the humeral brace. Hind wing likewise with a brown coloration in its extreme base. Legs: Foreleg pale, femur with a slight brownish tint over the surface becoming deeper brown at the extreme distal end; tibia pale except in the basal portion and at the tip; tarsi pale, claws pale. Middle and hind legs pale, but with a faint brownish tinge; femora with a deeper tinge at the distal end; claws slightly dusky. Coxae of all legs brown. *Abdomen.* Brown; middle abdominal segments not extensively pale as in many other species of *Paralep-*

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*tophlebia*. First abdominal tergite blackish brown. In the middle of tergites 2-8 there is a pair of blackish-brown, submedian streaks; a faint pale area between them on tergites 2-6; on 7 and 8 the clear areas become obsolescent. The anterior portion of tergites 2-7 being pale, a large, W-shaped, pale area is formed by the position of the geminate streaks. At the upper edge of the W, the pale area extends along the anterior border of the tergites to the lateral margins. Posterior half of tergites 2-7 colored with blackish brown which is more intense laterally but less intense posterior to the submedian dark lines. Tergites 8-10 almost completely brown. On tergite 9 there is a black, median streak in the anterior half, the remainder is brown overlaid with blackish-brown markings laterally. 10th tergite has a pair of blackish-brown marks at the posterolateral angles. At the lateral margins of tergites 2-7, the pale anterior border extends to the posterior



*Paraleptophlebia jeanae*, n. sp., male genitalia: fig. 1, ventral view; fig. 2, lateral view with ventral side up.

margin as a triangular pale area; just medial to the pale triangle, there is a heavier, blackish-brown line that extends from the posterior margin obliquely forward towards the median line. Sternites 2, 3, and 9 brown; others white. Ganglionic areas marked with orange. Forceps pale except at the extreme base; second segment considerably expanded medially (figure 1). Penes without a reflexed spur. In profile, there is a distinct curvature which appears to be almost elbowlike in the middle of each penis lobe (figure 2); each penis lobe with a distinct, thin process directed ventrally as a platelike structure. This plate begins at about the forceps base and extends distally to just beyond the elbow. Tips of penes terminate in outwardly directed sharp tips which are clear; remainder of penes brownish. Penes united only at the extreme base. Caudal filaments pale; basal segment of each filament brown; heavy spines at the joints in basal half give the tails a faintly annulate appearance.

*Female (allotype)*.—Body length, 6.8 mm.; mesothoracic wings, 6 mm.; caudal filaments, 6.4 mm. *Head*. Shaded as in the male. *Thorax*. Lateral and posterior margins of the pronotum outlined in blackish brown. Mesonotum brown. *Legs*: Fore femur shaded with brown; deeper brown at distal end; tibia pale except at the extreme base where it is brownish; tarsal segments with very narrow markings at each joint producing narrow annulations; claws dusky. Other legs pale;

tarsal segments unmarked. Wings: Longitudinal veins more distinct than in male but still pale. *Abdomen.* Abdominal markings like those of male except that the white areas of the male are brown in the female. Sternites 2-8 rusty brown; pale at mid-posterior margin. 9th sternite pale. Caudal filaments as in male.

Variations in male paratypes: Forelegs have femora distinctly washed with brown; tibia dark brown at the femorotibial joint and with a slight concentration of brown pigmentation at the distal end; tarsal segments show a faint indication of annulations at the joints. Abdominal color pattern with the pale areas at the anterior portion of tergites 2-7 less extensive than in holotype. Lateral line of abdominal segments 1-8 outlined in blackish brown. Virginia specimens are more deeply colored than the Alabama ones and the pigmentation of the abdomen shows a purplish tinge. One specimen noted with a median, dark line on tergite 10.

*Holotype.*—Male imago preserved in alcohol. Alabama, Sumter County, 12 miles west of Demopolis on U. S. Highway 80; April 13, 1954; collected by C. D. Hynes and L. Berner. In the University of Florida Collections.

*Allotype.*—Female imago preserved in alcohol. Same data as that of holotype.

*Paratypes.*—6 ♂♂, 2 ♀♀, same data as that of holotype. 3 ♂♂, 1 ♀, Virginia, Amherst County, Piney River; March 8, 1953; collected by Miss Jean Pugh. All paratypes preserved in alcohol in the University of Florida Collections.

The Alabama specimens of *Paraleptophlebia jeanae* were taken at a clear, sand-bottom creek which had steep banks of eroded shale. It was cool under the overhanging trees, many of which had the roots exposed along the banks of the stream. At the road over the creek there was a high bridge constructed with broad, flat, cement abutments on which the adult mayflies were found resting. Most of the specimens were apparently undergoing their subimaginal molt. Some subimagos were also taken that appeared to have just emerged. The collections were made between 9:30 and 11:00 a.m. At the time the collections were made the water temperature was 68°F. and the stream had a pH of 6.7. The water was slightly turbid.

A number of nymphs of *Paraleptophlebia* were taken at the Alabama stream at the same time that the adults were collected. These may be the immatures of *Paraleptophlebia jeanae*, but an adult female of a second species of the genus was also taken along with those of *P. jeanae* making the association doubtful. I am, therefore, not including the description of these nymphs.

#### REFERENCES

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